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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,396	06/06/2000	Richard F. Buckley	19546-020-(E-3915)	9558

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EXAMINER
TRAN, KHOA H

ART UNIT	PAPER NUMBER
3634	

DATE MAILED: 05/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/588,396	BUCKLEY, RICHARD F.	
	Examiner	Art Unit	
	Khoa Tran	3634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *21 February 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *21 February 2002* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Request for Continued Examination

The request filed on February 21, 2002 for a Request for Continued Examination (RCE) under 377 CFR 1.114 based on parent Application No. 09/588,396 is acceptable and a RCE has been established. An action on the RCE follows.

Drawings

The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on February 21, 2002 have been approved. However, since Figure 1 is a prior art drawing, reference numerals "10", "12", "14", "18a", "18b", and 22 in Figures 2-4 should be changed to other different reference numerals because the prior art and applicant's own invention are completely separate figures and these respective figures cannot share the same reference numerals. Appropriate correction is required.

Information Disclosure Statement

The information disclosure statement (form PTO 1449) filed February 21, 2002 has not been considered because there in no complete copies of the U.S. and foreign patents file therewith the information disclosure statement. Applicant is to require filing each complete copy of U.S and foreign patents that have listed in the Information disclosure statement for the examiner to consider.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 11 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. With respect to claims 1 and 11 the recitations of "said plurality of slots" on the arcuate lower grooved portion (20) is considered to be a new matter because there is no support in the specification of the lower arcuate supporting groove to have a plurality of slots thereon.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sibley ('230). Sibley ('230) discloses a silicon carbide semiconductor wafer carrier (70) including processes that require the use of high temperatures, see the Abstract and column 1, lines 8-11, column 2, lines 8-9, and column 3, lines 24-25. The semiconductor wafer boat (70) of Sibley comprising a plurality semiconductor wafers,

(only one showed, see Figure 5), receiving in a plurality of slots position between first and second ends of the boat. The plurality of slots (75) on the wafer boat are located on the first (left side) and second (right side) upper supporting guides and on the lower arcuate grooved portion (74), see column 5, lines 48-50, wherein the bottom of the semiconductor wafer is in contact and supported by the slot on the lower arcuate grooved portion, and the at least one window (32) positions substantially in a small distance in from the distal end of the boat. The process of making the wafer boat is through a process of involving high heating through a suitable temperature. See columns 7 and 8. With respect to claims 3 and 13, to one of ordinary skill in the art, it would have been obvious that the silicon carbide would recrystallized itself to a normal state when place in a cooler environment after being removed from the high temperature environment. With respect to the dimensioning of the wafer and the angle of the wafer relatives to the boat, and the distance of the windows locate from the distal ends of the boat, it would have been an obvious matter of engineering design choice as determined through routine experimentation and optimization for one of ordinary skill in the art to routinely dimension the wafer to have a diameter of about 300mm and the thickness of 5mm, and dimensioning the radius angle from the center to the periphery edge of the wafer relatives to the upper supporting guides to be in ranges of 10-80 degrees, and dimension the distance in from the distal end to the window is approximately not more than 10mm for a particular application thus producing no unexpected results. With respect to claim 7, it would have been obvious to one of ordinary skill in the art as a matter of design choice to make duplication in part of the

number of slots on the wafer boat in order to accompany the desire number of semiconductor wafers for a particular application thus producing no new matters. Note the applicant's drawings do not show the boat must support 25 wafers. Further, it is not the main inventive concept of the applicant to have a wafer boat design to hold only 25 wafers, see page 12, lines 19-20. With respect to the range of temperatures approximately between 1000 to 1400 degrees of Celsius, it should be noted, the patentability of the reciting structure, itself, that is to be determined and not how the product is to be constructed or the processes of the product arrive, Sibley ('230) discloses the process of making the wafer boat through a high suitable temperature, i.e., 2000 degrees Celsius, see column 8, lines 31-32. Sibley ('230) does not specifically disclose the temperature is to be in ranges of between 1000 to 1400 degrees of Celsius. However, it is well established by case law that it is not inventive to discover the optimum or workable ranges where the general conditions are known in the art. Further, it is expected, as a part of the level of skill would routinely experiment to discover the optimum or workable ranges for a particular use. Accordingly, it would have been an obvious matter of engineering design choice, as determined through routine experimentation and optimization, for one of ordinary skill in the art to dimension the process temperature to be in ranges between 1000 to 1400 degrees Celsius, thus producing no new and unexpected results.

Response to Amendment

Applicant's arguments filed February 21, 2002 have been fully considered but they are not persuasive.

With respect to applicant's contentions on page 7, last paragraph, that Sibley ('230) does not teach or suggest an arcuate lower grooved portion receives and supports at least a part of the lower area of semiconductor wafers, the examiner is respectfully disagrees. It should be noted that it is readily apparent that Figure 5 is clearly illustrated the lower arcuate grooved portion (74) being received and supported at least a part of the lower area of the semiconductor wafer. Presently, the language of the claim fails to avoid and/ or preclude the prior art of Sibley ('230).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khoa Tran whose telephone number is (703) 306-3437. The examiner can normally be reached on Monday through Thursday from 8:30 A.M. to 7:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola, can be reached on (703) 308-2686. The fax phone number for this Group is (703) 305-3597 or (703) 305-3598.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2168.

If the applicant is submitted by facsimile transmission, applicant is hereby reminded that the original should be retained as evidence of authenticity (37 CFR 1.4 and M.P.E.P.

502.02). In general, most responses and/or amendments not requiring a fee, as well as those requiring a fee but charging such fee to a deposit account, can be submitted by facsimile transmission. Responses requiring a fee which applicant is paying by check **should not be** submitting by facsimile transmission separately from the check. Responses submitted by facsimile transmission should include a Certificate of Transmission (M.P.E.P 512). The following is an example of the format the certification might take:

I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office Fax No. _____ On _____

(Date)

Type or printed name of person signing this certificate:

_____

_____

(Signature)

Furthermore, please do not separately mail the original or another copy unless required by the Patent and Trademark Office. Submission of the original response or a follow-up copy of the response after your response has been transmitted by facsimile will only cause further unnecessary delays in the processing of your application; duplicate responses where fees are charged to a deposit account may result in those fees being charged twice.

Khoa Tran

April 27, 2002

Daniel P Stodola

DANIEL P. STODOLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600